

FINAL REPORT

20020011

**PILOT ACCREDITATION OF BEEF FEEDLOTS AND
COW/CALF ENTERPRISES FOR SASKATCHEWAN
(QUALITY ASSURANCE)**

Funded by: The Agri-Food Innovation Fund

January, 2006

Prepared by: Saskatchewan Quality Starts Here Working Group



Canada 

Saskatchewan

FINAL REPORT FOR AFIF #20020011
"PILOT ACCREDITATION OF BEEF FEEDLOTS AND COW/CALF
ENTERPRISES FOR SASKATCHEWAN"

Submitted by Janice Sopatyk, Program Administrator
Saskatchewan QSH/VBP Working Group Inc.

Dec. 28, 2005

Summary

This project was initiated to develop an on-farm beef safety program addressing the needs and capabilities of the beef producer while addressing the desires of the consumer: the number one concern of consumers is the safety of the food they eat. It was viewed as critical to determine inputs from all areas of the beef industry with the goal to continue development of the beef program while sharing our information with other commodities in the development of their on-farm food safety programs. The objectives of this project were to develop an on-farm beef safety program that is credible, auditable and practical. The three main factors to be determined were the financial, human resource requirements and time requirements of the program. This information would prove invaluable in working with the National Management committee to determine costs per unit on the program, as well as intangible costs such as human resource and time requirements for producers on the program. Other areas of development were to identify practical Standard Operating Procedures, examples of on-farm records and storage systems, a manual for producers, training of on-farm auditors and experience for the Coordinator. Most operations did not report a direct financial cost as many were on a herd management program with their veterinarian/nutritionist. Human resource requirements involved the time commitment by the producer to complete the checklist in the Manual and develop Standard Operating Procedures for their operation. Producers reported a range of 6 to 30 hours to complete their Manual checklist and develop Standard Operating Procedures and documentation. Our Provincial Coordinator also developed a preliminary Producer Manual; some of the ideas within it were incorporated into the final national version of the Producer Manual.

Achievements

- I. **Communication to obtain names of possible trial results.** Several names were put forward after early producer meetings. The six initial trial pilot units were Hextall Livestock of Grenfell, Les and Linda Johnston of Fillmore, Weedon Ranch of Swift Current, Diamond L Livestock of Vibank, Jerry Sopatyk of Meacham and Pound-Maker Adventures of Lanigan. Communications were done by mail outs, telephone and networking by Livestock Agrologists, speakers' bureau, agriculture representatives, and the industry Working Group.
- II. **Develop material to describe program to possible trial units.** Letters were drafted and mailed to prospective operations to outline the program. These prospective trial units were chosen from producers who attended early introductory presentations or signed up at our booth at livestock conventions and meetings. Approximately 250 letters were mailed and replies were received from approximately 40 production units expressing interest in

participating as pilot units. The six initial trial pilot units were chosen from these producers.

- III. **Visit to first 4 trial units by Coordinator.** The Coordinator visited four initial operations to discuss the program, introduce the Producer Manual and assist the producers to begin answering the questions and to familiarize them with the documentation that would be required. We wanted to ensure that we visited cow/calf, backgrounding and feedlot operations. The producers visited were Weedon Ranch (cow/calf and backgrounding), Les Johnston (cow/calf), Jerry Sopatyk (cow/calf) and Red Coat Feeders (backgrounding, feedlot). Red Coat Feeders was subsequently replaced as a trial pilot unit.
- IV. **Communication to obtain names of possible on-farm auditors.** The Coordinator in cooperation with veterinarians, SAF Livestock Agrologists and provincial Livestock associations were asked to forward names of possible auditor candidates. Persons from our Speakers' Bureau were also given the opportunity to take the course if they wished. Other commodities were asked to put forward the names of 1-2 suitable candidates from their commodity to take "Auditing On-Farm Food Safety Practices". The Provincial Coordinator, in conjunction with the Provincial On-Farm Food Safety Specialist, developed an auditor application form based on ISO auditing standards. Most of these communications were done by mail or email.
- V. **Develop working agreement for trial auditors.** A biosecurity protocol and confidentiality agreement were developed by the National Management committee. This was mailed to our sixteen provincial auditors to be signed and returned. We wish to ensure that our auditors are aware of standards they must meet in the areas of biosecurity and confidentiality/conflict of interest.
- VI. **Develop training manuals/bio-security protocols.** Dr. Janice Sopatyk developed the "Biosecurity Protocol for QSH/VBP Auditors" (see attachment), which was expanded from beef auditors to on-farm livestock auditing. This has been adopted in principle by the National QSH/VBP committee as well.
- VII. **Training for auditors.** . In March, 2003 twenty-seven persons representing nine commodities registered to take "Auditing On-Farm Food Safety Practices" which was contracted to SGS Canada. Following this course, each candidate was required to take their commodity specific auditing course and complete 3-5 shadow audits before being considered qualified to audit that particular commodity. Saskatchewan delivered the Beef Auditing Module in February, 2004 and January, 2005. We have a total of 16 auditors in Saskatchewan who have taken both the SGS "Auditing On-Farm Food Safety Practices" and the Beef Auditing Module. Most of these auditors have completed at least one shadow audit with a senior auditor. SGS Canada was contracted to deliver "Auditing On-Farm Food Safety Practices" which was delivered over a 5-day period. This course introduced the principles of HACCP (Hazard Analysis Critical Control Point) and how HACCP is the basis of on-farm food safety programs. The Canadian Federation of Agriculture (CFA) and the Canadian On-Farm Food Safety Program (COFFS) commissioned the development of this program to ensure that each

commodity could be assured that the method of verifying on-farm food safety practices would be delivered in a consistent manner throughout the country. Each commodity is responsible to deliver their commodity specific course. The Beef Specific course was designed by Dr. Joyce van Donkersgoed (the Alberta Provincial Coordinator) in conjunction with the National VBP Management and Technical committees to deal with the Critical Control Points, Producer Manual, Record Examples and the Auditing Checklist specific to the Verified Beef Production program. These courses were deemed to be quite successful, however, the COFFS course is being re-designed to reduce the time commitment.

- VIII. **Auditor/Coordinator to 6 trial units.** The Coordinator revisited the six trial units in November, 2003 to determine how they were proceeding with the program. The six trial units were Hextall Livestock of Grenfell, Nisku Farms of Fillmore, Diamond L Livestock of Vibank, Shooting Star Farms of Meacham, Weedon Ranch of Swift Current, and Pound-Maker Adventures of Lanigan. Annual audit revisits were also done on all of the trial pilot operations one year after the initial certification audit, except for Diamond L Livestock; some of these were done in conjunction with the initial certification audit of other pilot operations. Hextall Livestock and Nisku Farms operations were revisited on a separate trip in April, 2005. This annual revisit was undertaken to determine the level of compliance of the farms and to determine what revisions were necessary to the program. All of the initial trial pilot operations maintained compliance with the VBP program; at the present time there are some revisions being done with the program at the national level to streamline the Producer Manual and avoid duplication in the program.
- IX. **Auditor to 6 trial units.** Janice Sopatyk, acting as senior auditor, accompanied five auditor trainees doing their shadow audits to the 6 trial pilot units for certification audits. Auditor trainees accompanied the senior auditor as part of their training; three to five "shadow audits" are required before an auditor is fully qualified.
- X. **Complete manuals for producers and auditors.** We printed 280 copies of the National Verified Beef Production producer manual, which includes Standard Operating Procedures and Example Records. These Manuals are provided to all producers who attend a workshop to enroll in the program. It is necessary for the VBP auditors to have a current copy of the Manual to ensure they are auditing current requirements of the program.
- XI. **Information for industry regarding accreditation program and trial units.** Producer Manuals and subsequent updates to the program were sent to all veterinary clinics in the province dealing with beef cattle. Veterinarians are to play an integral role in this program in that one of the major requirements of the program is to have a treatment and processing protocol that is annually updated and signed by a veterinarian. Manuals and the subsequent updates were provided to the 67 clinics that were doing beef cattle work at that time.

- XII. **Visit by auditor or coordinator to feed company, agrologist, and veterinarians.** The Coordinator and Administrator held meetings with Novartis Animal Health, Master Feeds, Saskatchewan Agriculture and Food Livestock Agrologists, Saskatchewan Association of Rural Municipalities, Saskatchewan Cattle Feeders, Canadian Food Inspection Agency, Western Beef Development Centre and Natural Valley Farms. We outlined the advantages of the QSH/VBP program for producers and how these agencies could become involved with the program and benefit from it. The Administrator also held information seminars for veterinarians in Regina, Weyburn, Swift Current, Melfort and North Battleford to update them on their role in the program. We received much positive feedback from industry meetings; most representatives felt it is imperative that the beef industry develop its own program to ensure better buy-in by producers. We had a total of twenty veterinary clinics represented at our regional veterinary updates (there were 67 veterinary clinics doing beef cattle work at that time in Saskatchewan).
- XIII. **ISO & HACCP training.** Introductory information on these systems was covered in the Canadian On-Farm Food Safety course conducted as part of the auditors training. No further ISO or HACCP training was done as we felt that HACCP was sufficiently covered within the auditors' courses and that the ISO component would be better covered at the national level of the VBP program in the development of their internal quality management system. The On-Farm Food Safety Auditor Training Course covered HACCP (Hazard Analysis Critical Control Point) based theory (on-farm food safety programs are all HACCP-based) and the general practical application of auditing principles to on-farm food safety programs. The course was designed as the On-Farm Food Safety Auditing national module and was developed by the Canadian On Farm Food Safety Working Group in partnership with the Canadian Federation of Agriculture, the Canadian On Farm Food Safety Program and Agriculture & Agri-Food Canada.
- XIV. **3 months communication with trial units.** Some inquiries were received from trial units on documentation requirements of the program; these were handled by the Coordinator and Administrator via phone and email; no on farm visits were undertaken.
- XV. **6 month revisit to trial units.** The Coordinator did revisits to the initial trial pilot units after the units had undertaken the program for approximately six months. The producers' progress was reassessed and their level of compliance with the program was determined. The level of practicality of the program was assessed. Producers reported that once they had the program set up for themselves that maintaining it was relatively easy. Most producers felt that the program was practical, although there was some concern around the possibility of paying a veterinarian/nutritionist to verify and sign the protocols. It was also felt that the section covering personnel hygiene and staff training was redundant for smaller operations and pertained to larger feedlots or operations with many employees.

- XVI. **Information storage on computer and hard copy.** A database and laptop were purchased to record the contact information of producers as they attend workshops, enroll on the program, receive technical assistance as they implement the Standard Operating Procedures and documentation and finally as they undergo a certification audit. Information was also recorded on financial, human resource and time requirements for the trial units to comply with the program. A record of all auditors' activities was also undertaken.
- XVII. **Additional administration.** Funds were used for Advisory committee meeting room rental, refreshments for Advisory meetings, conference calls for the Advisory committee, bulk mailings to producers and for meeting room rental and refreshments for meetings between registered (audited) producers, the Coordinator and auditors. The Advisory committee tried to meet to face to face on a quarterly basis; sometimes this was not possible or other issues arise which necessitate a conference call.
- XVIII. **4 meetings during program to evaluate progress.** We held one meeting with our Coordinator, Administrator, five of our auditors and eleven of our registered producers. The progress of the program was assessed and suggestions were discussed on how to improve delivery of the program and how to get the marketplace to increase uptake of the program. Suggestions centered around having the marketplace recognize herds which are using the VBP program and paying a premium for animals produced under this system. Producers felt that it is essential that the marketplace recognize that the VBP program does add a cost to production and consumers should be willing to pay more for a product that is produced under a verified system utilizing accepted principles of food safety. Time, human resource and financial requirements of the program were compared between different types of operations. Beef operations spent between 6 and 30 hours to implement their Standard Operating Procedures and supporting documentation. Human resource requirements were generally fulfilled mainly by the producer or feedlot manager. Records kept varied from hand written to computerized record keeping programs. Most operations did not indicate a direct financial cost to prepare for the audit; many are on a herd management program and were not directly charged for their veterinarian to review and sign protocols. Occasionally veterinarians charged for review and signing of protocols, charges were usually less than \$50. Auditors identified a pre-audit prep time of 1-2 hours. Actual on-farm audit time ranged from 2-3 hours for operations not using medicated feed to 12 hours for a large feedlot with an on-site mill mixing medicated feeds. Post-audit reporting required 1-2 hours. The Administrator spent on average 1-2 hours to review the audit report, ensure that all Corrective Action Requests were fulfilled and preparing and issuing a registration certificate.
- XIX. **Communication with CCA.** Funds were used for the Coordinator to attend National Management and Provincial Delivery Agency meetings in Calgary. It is imperative that our Provincial Coordinator and Program Administrator attend National meetings to update the other provinces on the program within Saskatchewan and to get feedback on how other provinces deal with rolling

out the program. The mandate of Verified Beef Production is to be a nationally consistent program.

- XX. **Visit by auditor to 16 units.** Funds were used to have auditors and trainees attend certification audits of the initial 16 trial units. We attempted to have two or three auditors doing their "shadow" audits with a senior auditor to ensure that we can train as many fully qualified auditors as possible while completing our trial audits.
- XXI. **Meeting to summarize and analyze.** Two meetings and two conference calls were held by the Advisory committee with the Coordinator and Administrator to discuss the findings for human resource, time and financial commitments by producers. Auditors' time for the audit process was also discussed. We also discussed the effectiveness of the program in relation to what beef markets require, and made adjustments to record examples to make the program easier for producers to adjust to. The main driver identified by these meetings and meetings with our registered operations and auditors is the need to have feedlots and/or packers/processors who request animals they buy are produced under this program. It was also identified that we need to reinforce the fact that during an audit we are evaluating the producers' management/documentation and are not endorsing their final product whether it be the live beef animal or cuts of beef. Many of these findings are being used at a National level to evaluate the effectiveness of the program and the ease with which producers will adopt it. These adjustments are on-going and have included the need to remove repetitive areas in the manual as well as to make record examples more explicit so that producers find it easier and quicker to write protocols and develop records which they may not have in place. We also identified that many producers already have in place the majority of records required by the VBP program. The main items missing are veterinary signed protocols and Prohibited Feed Affidavits. Most producers already keep treatment/processing records and shipping records.
- XXII. **Complete document with critique of program.** A copy of the final report on financial, human resource and time requirements were sent to the Advisory committee. Producers' time requirements to implement Standard Operating Procedures with supporting documentation were identified. The actual time for a certification audit was identified for different types of operations. Pre-audit preparation time and post-audit time to complete and submit the audit findings was identified. Our initial six trial pilot units were followed in greater detail – the Coordinator visited the operations 2-3 times and an auditor visited them for the initial certification audit as well as an annual update audit. We did certification audits on a total of 16 operations; the initial 6 trial pilot units were studied in-depth and more frequently. The other ten operations audited received only the initial on-farm certification audit visit.
- XXIII. **Promotion, advertising and education.** In an attempt to increase public awareness of the program, we did radio advertising and mailed updates to industry (feed and pharmaceutical companies, Livestock Agrologists). We also provided stall signs and framed certificates to our six initial trial units during Agribition, 2004 where the National Verified Beef Production program

received its Letter of Technical Recognition from the Canadian Food Inspection Agency. Radio advertising took place during September, 2004 and September, 2005. We advertised on CKSW (Swift Current) and affiliates CJSN (Shaunavon) and CHAB (Moose Jaw), GX94 (Yorkton), CJNB (North Battleford), and CJVR (Melfort). We felt that these stations covered a good geographical cross-section of the province. By advertising during the peak of the harvest season we were able to reach a large listening audience. Our Provincial Coordinator reported that many of the inquiries he had in October indicated that they had heard about the VBP program on the radio ads.

At the outset of the project in 2002 Quality Starts Here was in its infancy both provincially and nationally. With the aid of this AFIF funding we provided invaluable input to the national program by following our trial pilot operations. Our Provincial Coordinator developed a sample Producer Manual and Record Examples (not under AFIF funding), which were not adopted in its entirety but from which many ideas were used in developing the National Producer Manual. The National Producer Manual contains a checklist of procedures which should be followed, a description of Standard Operating Procedures (SOP's), a description of how SOP's should be developed for each individual operation and what documentation should be provided to verify these processes. Our Program Administrator developed a Biosecurity Protocol (with funding from this AFIF project) which was initially drafted for beef auditors and was subsequently expanded to include on-farm livestock auditors in general. Once we have several commodities actively delivering on-farm food safety programs it would be of benefit for the producer to have several commodities audited on one farm visit. The Biosecurity Protocol was drafted to outline diseases which may cross species boundaries and/or are easily transmitted mechanically between farms as well as zoonoses (diseases which cross animal/human boundaries). It is essential that our auditors are not the vectors of any disease outbreaks during the course of their auditing activities. Our work with the trial pilot units that spanned over a two-year period provided information critical to determine changes and updates needed to the program to ensure ongoing compliance. Information from the initial trial units provided an estimate of costs in terms of human resource and financial costs and time commitment by the producer. We were also able to aid in development of beef auditor training, audit checklists, and an estimate of time required to complete the audit process.

The actual time required for a certification audit ranged from 2 hours for a cow/calf operation without medicated feed to 12 hours for the audit of large feedlot with an on-site feed mill; pre-audit preparation time was be approximately 1-2 hours and post-audit reporting requirements was 1-2 hours. This is time for the auditor to complete his work and is exclusive of administration time for the necessary record-keeping and payroll. The pilot units found that they required between 6 and 30 hours to implement the Standard Operating Procedures and supporting documentation required for their audit. Many operations did not identify a specific financial cost for the program; many of the pilot operations are on a herd management program with their veterinarian and were not charged an extra specific fee to sign protocols. Other operations have incurred a minimal cost of up to \$50 for development and endorsement of protocols by their veterinarian.

In late 2003 the Verified Beef Production program was introduced. It is built on the Good Production Practices and Standard Operating Procedures identified under the Quality Starts Here program and adds the documentation required to provide proof during an audit that the operation is adhering to the program. Much of this development was based on information gained while studying the pilot operations in Saskatchewan. (Alberta and Ontario have also been instrumental in laying the groundwork for the program as they embarked on the Quality Starts Here program at the same time as Saskatchewan). As of 2005 all provinces have begun delivering the Verified Beef Production program.

Our relatively long history with this program, which was made possible in part by funding provided by AFIF, has aided in the development of the Quality Starts Here/Verified Beef Production program both in Saskatchewan and nationally. Our Letter of Technical Recognition was received from the Canadian Food Inspection Agency in November, 2004; this signifies that they our Producer Manual, HACCP model and program requirements meet both national and international standards for on-farm food safety programs. We have had just over 600 Saskatchewan farms attend a workshop to be enrolled on the program and now have audited 19 production units in Saskatchewan with 18 of these receiving full certification (we are awaiting completion of Corrective Action Requests from one operation). The Quality Starts Here/Verified Beef Production program, which was developed with a great deal of input gained from our pilot units, is indeed credible, auditable and practical.

Funding received from AFIF was acknowledged on our display, which we had at several livestock shows, livestock association conventions and field days. We are grateful to the Agri-Food Innovation Fund for providing funds with which the Saskatchewan QSH/VBP Working Group Inc. was able to gather information essential in the continuing development of the Verified Beef Production program in Canada.

BIOSECURITY PROTOCOL

FOR ON-FARM LIVESTOCK AUDITORS

The global marketplace and the need to minimize animal health concerns in food-producing animals has made biosecurity increasingly important. An effective biosecurity program minimizes the threat of disease – resulting in a real-time insurance policy for the health and productivity of the herd.

Auditing will be undertaken by people who may be considered high-risk by virtue of being livestock producers at home and by travelling between different premises. The potential for liability exists should disease transfer occur between audited operations or from/to a home operation. This risk can be managed by implementing sound biosecurity principles for auditors based on the principles of isolation, traffic patterns and sanitation.

Goals

The goal of biosecurity is to stop transmission of disease-causing agents and involve management principles used to prevent infectious agents from entering a livestock operation. Biocontainment is the effort to contain the spread of disease within the herd and/or from leaving the premises. The on-farm food safety auditor must follow principles of biosecurity and biocontainment in order not to compromise the biosecurity program of the producer or the principles of the on-farm food safety program under review.

Biosecurity Principles

Isolation principles for auditors centre around minimizing contact between different groups of animals on one operation and preventing the introduction of disease agents on to the property. For example, auditors could act as mechanical carriers of disease on their clothing and boots. Some of these diseases are zoonoses (diseases transmissible between animals and humans) posing public health and occupational health concerns. There may be other species present on the operation and the auditor must consider disease transfer between species on the operation and to/from other operations even though the audit may involve only one species.

Traffic patterns must be considered – it is best to start with the least disease resistant and highest health status group and work toward the group with the lowest health status. Auditors must be cognizant of the potential to spread disease agents to the most susceptible group or species of animals on the operation. It is also important to consider the species present and their disease interaction. Even though some producers may not be particularly concerned with traffic patterns the auditor should demonstrate leadership and conduct an audit in such a way as to minimize disease transfer.

Many common pathogens are spread by fecal contact. The main objective of sanitation is to prevent fecal contamination from entering the oral cavity of animals. Disease is also spread by aerosol transmission or presence of a variety of body fluids. The goal is to prevent these disease organisms from leaving that particular operation and being spread to another or to the auditor's home herd or flock.

Time of year and stage of the production cycle will also have a bearing on biosecurity considerations. Doing an audit in the middle of calving or lambing means visiting when there is a large number of susceptible young animals which have the least immunity to disease. The producer may not want high-risk traffic contacting his most susceptible animals at this time.

Effective practices for auditors centre around preventing disease transfer and thorough cleaning and disinfection of equipment moving between premises. Critical points exist when entering or exiting a different production area on each premises, and when moving to a new production unit whether that of a new audit client or the auditor's home herd.

On-farm food safety auditors must be aware of the possible devastating effects of careless hygiene and traffic patterns followed during on-farm visits. It is incumbent on auditors to be vigilant of possible disease transfer and to not jeopardize the premises they audit, the credibility of the programs they audit or the supply of safe food products being produced for consumers by these committed producers.

BIOSECURITY CONSIDERATIONS for entrance and exit from premises

(Must-do's are outlined in bold)

BEFORE entering the Premise

- ✓ **When setting up the appointment with the owner/manager for the on-farm audit, inquiry shall be made as to diseases which may be present and any biosecurity requirements specific to the operation.** The auditor will verify which staff members he will meet with and specifically who will be available for the audit. The audit appointment will be made at a convenient time to minimize distractions and adverse effects on production.
- ✓ A potential traffic pattern through the operation will be discussed so as to prevent cross-contamination. The auditor will get a complete list of species present on the farm and be aware that disease transmission can occur across species.
- ✓ The vehicle will be divided into a "clean" area containing fresh supplies and a "dirty" compartment where items will be deposited after being used (see Glossary of Terms). Rubber floor mats will be used for the driver and all passengers. Cover the surface of the "dirty" area with heavy plastic that can be removed for cleaning and disinfection.
- ✓ All clean coveralls, boots, audit forms and any other necessary equipment will be kept in plastic containers with lids in the "clean" compartment – one set of supplies for each farm.

UPON ARRIVING at the farm

- ✓ It is advisable to wear coveralls or a jacket (light nylon shell) and a hat. The coveralls or jacket will be worn over all other clothing making it necessary to only wash the jacket or coveralls after the visit. Outerwear made of nylon or a blend does not hold as much debris, is easy to wash and dries quickly. **Wash outerwear after each visit** to prevent mechanical transmission of feed, fecal matter or other body secretions to the next location or to the auditor's home herd. Disposable outerwear may rip more easily exposing and contaminating clothing underneath. Particularly dirty clothes could be laundered at a commercial facility rather than contaminate the auditor's home farm.
- ✓ Impermeable rubber boots should be worn. Pay attention to the tread pattern; deep grooves make cleaning more difficult. It is best to have one pair of boots for each farm visited during the day; this means that boots will be thoroughly cleaned and disinfectant applied with the appropriate contact time at the end of the day to minimize the risk of contamination. Many operations are not set up to sufficiently clean boots (particularly in winter) in order to attain complete disinfection of one single pair of boots for all operations to be audited in one day; the more organic debris present the less effective any disinfectant can be. Plastic disposable overboots will not likely stand up to the terrain being covered in most operations.
- ✓ Some operations will supply boots and coveralls as part of their biosecurity protocol. This is most common in pork and poultry operations and auditors should request specific procedures upon arrival.

- ✓ Park the vehicle in a clean area near the perimeter of the operation where there is no manure contamination. Roll up windows to prevent entry of insects. It is imperative not to take manure contamination away from the operation on the vehicle when leaving.
- ✓ Put on boots and coveralls at the farm. **Boots will be sanitized with a disinfectant solution before proceeding into the operation.**

WHILE on the farm

- ✓ Confirm your traffic pattern through the operation to minimize cross-contamination between production areas. Assess feed storage and processing areas first. Do not stand or walk in feed bunks, over silage piles, bales or through other feedstuffs. View animals and associated handling facilities in order of ascending contamination risk. View animals in order of youngest to oldest and healthiest to sickest. View treatment areas, isolation/sick pens near the end, followed last by dead animal disposal and/or pickup area.
- ✓ Pertinent records can be reviewed at the end of the walk-about; viewing facilities often makes some of the documented procedures self-explanatory.

WHEN leaving the farm

- ✓ **Scrape boots or shoes free of debris**, hose off if possible and wash with a boot brush and disinfectant, remove, place inside a plastic bag and deposit into a plastic container with lid. Coveralls will be removed, turned inside out to contain debris and prevent contaminating street clothing and deposited into the plastic container with the boots.
- ✓ Hands and fingernails should be washed with a suitable skin disinfectant before leaving the operation.
- ✓ No dirty outerwear/footwear should be worn while travelling between premises.

AFTER returning to the office/home

- ✓ At the end of the day all items in the "dirty" compartment will be cleaned. **All coveralls or outerwear will be laundered regardless of whether or not it looks clean.** If particularly dirty consider laundering at a commercial facility to prevent introducing contamination to the auditor's home herd. **Boots or shoes will be hosed if possible, brushed free of all organic matter and disinfected with the appropriate solution for an adequate contact time.** The "dirty" compartment will be vacuumed or brushed free of debris. After cleaning, boots and outerwear will be returned to the "clean" compartment. All plastic containers will be cleaned inside and out and ensure that there is a sufficient supply of garbage bags. Any plastic carriers, boots or coveralls that are sufficiently damaged that they cannot be properly cleaned will need to be replaced. Clean the exterior of the vehicle paying particular attention to tires and wheel-wells that may be contaminated with manure or other debris.
- ✓ **Auditors will shower and wash hair thoroughly between each audit day to remove potential contamination.**
- ✓ **Auditors will keep a logbook recording cleaning procedures.** A brief outline of any unusual circumstances will be noted and an example is provided. For example any dead animals found in unusual circumstances or a large number of sick animals.

Disinfectants

- ✓ Most pathogens live outside the body for a few hours/days but their lifespan can be greatly extended by the presence of organic material; removal of organic matter can reduce the pathogen load by up to 95%. A disinfectant will be broad spectrum (eliminates bacteria, viruses, protozoa, fungi and spores), non-irritating, non-toxic, non-corrosive, and inexpensive, have good activity in organic matter, appropriate contact time and temperature and effective with a variety of water conditions. The terms disinfectant, antiseptic and detergent are not interchangeable (see Glossary of Terms).
- ✓ Antiseptics suitable for hand washing include Phisoex and Hibitane Skin Cleanser. Gel products that do not require water for washing such as CIDA-Rinse and Microban Skin

Cleanser are useful in situations where water is not readily available for washing and the hands are not excessively soiled.

- ✓ Virkon is currently used by CFIA in its on-farm protocols. A 1% solution of Virkon (10 grams of Virkon powder dissolved in 1 litre of lukewarm water) for a contact time of 10 minutes is effective against most common pathogens. Virkon has excellent detergent qualities, is of low toxicity, non-tainting and non-irritating. Cost is approximately \$.50/litre. Virkon requires rinsing and goggles and gloves should be worn while mixing the solution.
- ✓ Some veterinary colleges use Peroxigard, which is effective at a dilution of 1:16 (2 oz or 64 ml/litre) for a contact time of 5 minutes at 20 degrees C. It is also broad spectrum and has been recently licensed against the anthrax organism in the U.S. There is no need to rinse after use and it effectively breaks down bio-film. Cost is approximately \$.52/litre. Protective clothing should be worn during mixing of the solution; a ready to use product is also available.

Organic Livestock Operations

- ✓ Many products routinely used for sanitizing/disinfection are prohibited in organic production. It is imperative the auditor check with the organic producer for specific requirements as there are several organic certifying bodies with differing regulations. Many of the allowed substances have longer contact times and do not have a broad spectrum of activity making them less effective than traditional disinfectants unless used very carefully. Some of the synthetic substances allowed as disinfectants in organic livestock production are:
 - Alcohols – Ethanol and Isopropanol – Not effective against non-enveloped viruses such as Rotavirus (scours), not effective in organic matter, require long contact times.
 - Chlorine – Calcium Hypochlorite, Chlorine Dioxide, Sodium Hypochlorite (B90). Residual chlorine levels in the water shall not exceed the maximum residual disinfectant limit under the Safe Drinking Water Act (3ppm). These are not effective against spores, corrosive, irritating to living tissues, and have much reduced effectiveness in water below 50 degrees Fahrenheit or at a pH outside the range 6-8.
 - Iodine – Has poor residual activity necessitating several applications, stains materials, is corrosive and has limited activity in the presence of organic matter.
 - Chlorhexidine – Hibitane Skin Cleanser – Requires multiple applications.
 - Hydrogen Peroxide – Is not virucidal (does not kill viruses).
- ✓ When auditing organic operations disinfecting boots with a light spray of alcohol, iodine, or hydrogen peroxide (provided these are allowed substances) will be done on arrival. Hands will be washed with Chlorohexidine or alcohol gel hand sanitizer and all cleaning and disinfection done off the premises. It is imperative that no prohibited disinfectant residues be introduced onto the premises. When cleaning is done prior to arrival on organic premises, after the required contact time with the traditional disinfectant items would be thoroughly rinsed with plain water and allowed to dry before being used on an organic operation.

Diseases Crossing Species Barriers and Zoonoses

The following is a list of the more common diseases that affect multiple species and have major implications in auditing premises where multiple species exist. Some of these diseases cause mild or no apparent infection in one species but can be highly virulent in another species. Some are also zoonotic; auditors should be mindful that personal hygiene is always critical. Auditors must always get a complete listing of species present on premises to be audited and be mindful of all species raised on their home farm while considering the possibility of cross-species disease transfer. This information regarding exposure to other species should be communicated to the auditee. It is possible that some auditors may not be able to audit all species by virtue of species that they raise at home (no one is allowed into a closed pork operation if they have been in contact with other hogs during the last 72 hours). Auditors should also be mindful of Hanta virus infection, which they could potentially be exposed to in buildings or areas heavily infested with deer mouse droppings. This infection is potentially fatal in humans. If at any time an auditor experiences any unusual illness they should consult a physician and give their complete exposure history.

DISEASE	SPECIES AFFECTED	SYMPTOMS	CARRIER SPECIES	TRANSMISSION	ZOONOSES
Bovine Virus Diarrhea	Cattle, Bison, Wild Ruminants	Abortion, Congenital Defects, Pneumonia, Diarrhea (Mucosal Disease), Immunosuppression leading to other diseases	Persistently Infected Calves	Manure, Aerosol, Semen	No
Coccidiosis	Cattle, Bison	Bloody Diarrhea	Bison often show no signs	Manure	No
Cryptosporidium	Cattle, Goats, Sheep, Pigs, Bison, Wild Ruminants, Rodents	Diarrhea	All species can be asymptomatic shedders	Manure	Yes
E. coli 0157:H7	Cattle, Sheep, Bison	Ruminants usually show no disease but causes potentially fatal toxemia in humans	Cattle, Sheep, Bison	Manure	Yes
Giardia	Domestic and Wild Species	Diarrhea especially in the young	All, including humans	Manure	Yes
Johne's (6)	Cattle, Bison, Sheep, Elk, Deer	Chronic diarrhea, weight loss	Shed for several months/years before showing disease	Manure, Milk	Implicated in Crohn's Disease
Leptospirosis	Cattle, Bison, Sheep, Goats, Pig, Horse	Kidney infection, abortion, mastitis	All, rodents, wild carnivores	Urine, Aborted Fetus Uterine Discharge	Yes
Listeriosis	Ruminants	Abortion, Mastitis, Encephalitis	All ruminants	Manure, Moldy Silage	Yes
Lungworm	Bison, Cattle	Pneumonia	No inapparent carriers	Manure on pasture	No
Malignant Catarrhal Fever (5)	Cattle, Bison, Elk, Deer, Sheep, Goat	Depression, Diarrhea, Ulcers in Nose and Mouth	Sheep, Goats	Nasal secretions, Placenta and amniotic fluid of sheep and goats	No

Orf (Contagious Ecthyma)	Sheep, Goat, Cattle, Reindeer, Bison	Pustules on mouth, lips, nose, teats, Abortion	No inapparent carriers	Touching pustules, aborted fetus or contaminated equipment	Yes
Parelaphostrongylus Tenuis (Brainworm)	Sheep, Goat, Llama, Elk, Deer, Caribou	Progressive incoordination	Inapparent infection in early stages	Manure	No
Q Fever (9)	Cattle, Sheep, Goats	Often asymptomatic, Sheep may abort	Cattle, Sheep, Goats	Urine, Manure, Milk, Placenta, Fetal Fluids, Survive a long time in environment; often inhaled	Yes
Ringworm	All Farm Animals and Pets	Scabby or scaly skin, hair loss	No inapparent carriers	Direct Contact or contact with fungus contaminated items	Yes
Salmonella	Cattle, Sheep, Swine, Bison, Poultry	Diarrhea, Toxemia	All species can be inapparent carriers	Manure	Yes
Sarcosporidia	Cattle, Bison, Sheep, Goat, Pig	Often none	Require carnivore (cat, dog, coyote, fox) as Intermediate Host	Carnivore feces, Raw Meat	Yes
Toxoplasmosis	Cattle, Bison, Pig Sheep, Goat, Horse	Abortion, Stillbirth, Pneumonia	Cats	Cat feces, raw meat	Yes

Glossary of Terms

Aerosol Transmission – Disease agents (often viruses) spread through the air.

Antiseptic – Chemical used to inhibit or prevent growth of microbes on living tissue.

Asymptomatic – Showing no symptoms of disease.

Bio-security equipment - may include, but not be limited to coveralls, bonnets, acceptable footwear, disposable latex gloves, disposable dust masks, disposable plastic bags – zip-lock bags and garbage bags, a hand sanitizing lotion or "Handi-wipe" disinfectant wet towels, an equipment sanitizing lotion such as isopropyl alcohol or disinfectant wet towels may be used to wipe down common equipment such as pens, clipboards, calculators, and counters, a pressurized spray tank, appropriate tire disinfectant such as Dettol, Virkon, One Stroke etc., flashlight, pen, paper, forms, plastic or metal clipboard, first aid kit and blankets. Other useful items may include rubber boots, binoculars, shallow rubber wash basin, bristle scrub brush, strong detergent (Mr. Clean, Ajax)

Clean – means free of any visible dirt, mud, manure, particularly in the cleats of boots, followed by disinfection. If hats are worn, ensure they remain clean.

Congenital defect – Defect present at birth.

Detergent – Water-soluble cleansing agent that has wetting and emulsifying properties; cationic detergent remains suspended in solution; anionic detergent may not remain suspended in hard water.

Dirty – having been in contact with animal secretions, body fluids or manure. For example blood, saliva, milk, semen, manure, urine, mucus, or other discharge/organic matter, or equipment containing any of the preceding used in a previous audit.

Disinfectant – Chemical used to inhibit or prevent growth of microbes on inanimate objects; usually too strong to be used on living tissue.

Encephalitis – Inflammation of the brain; usually leads to neurological symptoms.

Immunosuppression – Chemical or disease agents that reduce the ability of the animal's immune system to function properly. (eg. BVD virus in cattle; PRRS virus in swine)

Impermeable – Not permitting the passage of fluids or solids.

Inapparent carriers – Animals carrying and shedding the disease organism without showing symptoms.

Sanitize – To reduce the number of microbes to a safe level.

Sterilize – To eliminate all microbes.

Virulent – A highly infectious and noxious disease process.

Zoonosis – A disease of animals that is communicable to humans.

SAMPLE PAGE FOR AUDITOR'S LOG BOOK

PRE-AUDIT

Contact Date - _____
Date/Start Time - _____
Program to be Audited - _____
ALL Species Present - _____
Audit Date & Time - _____
Personnel Present for Audit - _____
Disease Concerns? - _____
Traffic Pattern - _____
List Production Areas _____

AUDIT

Farm/Producer Name - _____
Directions - _____
Address - _____
Phone # - _____
Land Location - _____
Disease Concerns? - _____
Changes to Traffic Pattern? _____

Date of Last Audit and Species Audited _____
Was this disclosed to client? _____

Disinfectant Used Upon Entry to Premises _____

List Production Areas in Order Travelled _____

Unusual Findings/Biosecurity Concerns _____

Producer Biosecurity Requests ☐ organic _____

Time Audit Finished _____

Audit Outcome _____

Clean-up Protocol _____

Signature/Date

References

1. An Introduction to Infectious Disease Control on Farms (Biosecurity), 2001, BAHM publication available at www.aphis.gov/vs/ceah/cahm/Dairy_Cattle/BAHMBiosecur.pdf
2. Blackwell, M., An Overview of Swine Biosecurity, 2002, Antec International Ltd. Bulletin available at www.antecint.co.uk/main/vetbios.htm
3. Blackwell, M., General Biosecurity in Poultry Production, 2002, Antec International Ltd. Bulletin available at www.antecint.co.uk/main/poulbio.htm
4. Buhman, M., Dewell, G., Griffin, D., Biosecurity Basics for Cattle Operations and Good Management Practices for Controlling Infectious Diseases. Nebguide Extension Bulletin 2/29/03 available at www.ianr.unl.edu/pubs/animaldisease/q1411.htm
5. Canadian Quality Bison Manual – personal communication with Bob Ford of the Canadian Bison Association, 2003.
6. Canadian Quality Milk Manual and Producer Workbook, Dairy Farmers of Canada, 2001.
7. Cattle Industry Biosecurity Plan-Department of Agriculture-Western Australia, January/2003 available at www.agric.wa.gov.au/agencypubns/miscpubs/mp35_2002/index.htm
8. CFIA – Routine Farm Inspection Biosecurity Protocol (Livestock Handling and Non-Livestock Handling). 26/07/02
9. Food-Safe Farm Practices – Canadian Sheep and Lamb On-Farm Food Safety Program Draft Copy. Canadian Sheep Federation. 2003
10. Gillespie, J., R., The Underlying Interrelated Issues of Biosecurity. JAVMA 216:662-664. 2000
11. Kennedy, J., Bek, J., Griffin, D., Selection and Use of Disinfectants. Nebguide Extension Bulletin G00-1410-A available at www.ianr.unl.edu/pubs/animaldisease/q1410.htm
12. Miller, L.E., Quality Assurance – Future Trends in Animal Health Certification and Auditing. 2000. available at <http://marketingoutreach.usda.gov/info/99manual/health.htm>
13. National List of Allowed and Prohibited Substances, National Organic Materials Review Institute, 2002.
14. Parker, R., Looper, M., Mathis, C., Sawyer, J., Biosecurity on the Beef and Dairy Operation. New Mexico State Guide 121 available at www.cahe.nmsu.edu
15. Communications with Dr. Chris Clark at W.C.V.M. and Dr. Sandra Stephens at CFIA.
16. Radostits, O.M., Principles of Biosecurity in Health and Production Management of Cattle for the Production of Wholesome and Safe Meat and Milk, Presented at the June Conference, W.C.V.M. June 7/02.
17. Sanderson, M.W., Dargatz, D.A., Garry, F.B., Biosecurity Practices of Beef/Cow-Calf Producers. JAVMA 217:185-189. 2000

18. Smith, D.R., Biosecurity Principles for Livestock Producers. Nebguide Extension Bulletin available at www.ianr.unl.edu/pubs/animals/g1442.htm
19. Suggestions to Protect your Livestock Operation. U.of Illinois Extension Bulletin available at <http://il-traill.outreach.uiuc.edu/biosecurity/papers/protect.html>
20. Thomson, J.U., Implementing Biosecurity in Beef and Dairy Herds. The Bovine Proceedings No. 30:8-13. 1997.
21. Waddilove, J., Breaking the Disease Cycle – New Patterns in Pig Production. 2002. available at www.antecint.co.uk/main/cyclebrk.htm
22. Waddilove, J., Immunosuppressive Viruses – A New Pattern in Pig Disease. 2002. available at www.antecin.co.uk/main/immunovi.htm
23. Wolfgang, D.R., Biosecurity – A Practical Approach. PennState U Veterinary Science Information Bulletin, 2002.
24. Wruck, G., Farm Food Safety Progress, Manitoba Food Safety Newsletter. March/2000. www.gov.mb.ca/agriculture/foodsafety/newsletter/cfs05s01.htm

